Smallpox Bibliography
November 2004

1: Can Commun Dis Rep. 2004 Oct 1;30(19):167-9.

Smallpox vaccination of laboratory workers.

[Article in English, French]

[No authors listed]

PMID: 15499827 [PubMed - indexed for MEDLINE]

2: J Biolaw Bus. 2004;7(2):40-53.

A look behind the scenes: bioterrorism, smallpox, and public health policy.

Beane J.

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The September 11, 2001 terrorist attacks on the World Trade Center and continued conflict in Middle Eastern countries has provoked a strong interest in issues of national security. On December 13, 2002 the Bush Administration announced its smallpox vaccination policy, the first nationwide "proactive" measure to address the threat of bioterrorism. The Program has received mixed reactions as a result of partisan issues, tensions in public health policy and federal and state jurisdiction, conflicting scientific views, and different risk assessments. The slow pace of the program, the difficulties surrounding its implementation, and the debates regarding its validity serves as a "case study" to demonstrate current short-comings in federal and state anti-terrorist and public health policies. The focus will be on the states' public health laws and emergency preparedness plans through an analysis of the proposed Model State Emergency Preparedness Act. Updating current public health laws combined with increased funding of scientific research and the foresight to act "proactively" will reach far beyond improving national security. These efforts serve the dual purpose of deterring future terrorist attacks while greatly improving responses to a number of other health emergencies and disasters.

PMID: 15460560 [PubMed - indexed for MEDLINE]

3: Am J Epidemiol. 2004 Oct 1;160(7):642-51.

Myopericarditis following smallpox vaccination.

Arness MK, Eckart RE, Love SS, Atwood JE, Wells TS, Engler RJ, Collins LC, Ludwig SL, Riddle JR, Grabenstein JD, Tornberg DN.

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Myopericarditis has been a rare or unrecognized event after smallpox vaccinations with the New York City Board of Health strain of vaccinia virus (Dryvax; Wyeth Laboratories, Marietta, Pennsylvania). In this article, the authors report an attributable incidence of at least 140 clinical cases of myopericarditis per million primary smallpox vaccinations with this strain of vaccinia virus. Fifty-eight males and one female aged 21-43 years with confirmed or probable acute myopericarditis were detected following vaccination of 492,730 US Armed Forces personnel from December 15, 2002, through September 30, 2003. The cases were identified through sentinel reporting to military headquarters, active surveillance using the Defense Medical Surveillance System, or reports to the Vaccine Adverse Event Reporting System. The observed incidence (16.11/100,000) of myopericarditis over a 30-day observation window among 347,516 primary vaccinees was nearly 7.5-fold higher than the expected rate of 2.16/100,000 (95% confidence interval: 1.90, 2.34) among nonvaccinated, active-duty military personnel, while the incidence of 2.07/100,000 among 145,155 revaccinees was not statistically different from the expected background rate. The cases were predominantly male (58/59; 98.3%) and White (51/59; 86.4%), both statistically significant associations (p = 0.0147 and p = 0.05, respectively).

PMID: 15383408 [PubMed - indexed for MEDLINE]

4: Bull Hist Med. 2004 Fall;78(3):575-609.

Averting disaster: the Hudson's Bay Company and smallpox in western Canada during the late eighteenth and early nineteenth centuries.

Hackett P.

During the late eighteenth and early nineteenth centuries the Hudson's Bay Company served as a de facto public health agency across western Canada. Among its biggest challenges was combating the smallpox epidemics that periodically threatened the Aboriginal people of the region. Initially, the Company's employees turned to quarantine over variolation in order to prevent the spread of the disease to Hudson Bay in the summer of 1782. Although well thought-out, ultimately this policy proved unsuccessful. Within thirty years the HBC had turned to the newly discovered vaccination, a strategy that was to prove far more effective in fighting the disease. By the late 1830s the Company was able to mount an effective vaccination campaign that covered much of western Canada.

Publication Types:
Historical Article

PMID: 15356371 [PubMed - indexed for MEDLINE]

5: Indian J Med Res. 2004 Aug;120(2):70-2.

Comment on:
Indian J Med Res. 2004 Aug;120(2):86-93.

From smallpox to polio and beyond: disease surveillance in India.

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Publication Types:
Comment

PMID: 15347854 [PubMed - indexed for MEDLINE]

6: J Infect Dis. 2004 Oct 1;190(7):1295-302. Epub 2004 Aug 30.

Clinical and immune responses after revaccination of israeli adults with the Lister strain of vaccinia virus.

Orr N, Forman M, Marcus H, Lustig S, Paran N, Grotto I, Klement E, Yehezkelli Y, Robin G, Reuveny S, Shafferman A, Cohen D; Vaccinia Study Group, Medical Corps, Israel Defense Force; Vaccinia Study Group, Israel Institute for Biological Research.

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BACKGROUND: During the winter of 2002-2003, the Israeli health authorities launched a campaign to vaccinate first responders against smallpox. METHODS: In an open study, 159 healthy, preimmunized adults, 24-52 years old, who participated in the campaign were vaccinated with the Lister strain of vaccinia virus by the multipuncture technique. The safety, immunogenicity, and reactogenicity of the vaccine were assessed. RESULTS: Successful vaccination rates were 61% and 56%, on the basis of clinical take and seroconversion, respectively. Adverse events among the vaccinees were minor. Seventy-nine (88%) of the 90 vaccinees with clinical take also seroconverted (kappa =0.779). The level of preexisting antibodies inversely correlated with the rates of clinical take and seroconversion (P</=.0098). In the group of vaccinees with the lowest preexisting levels of antibodies, 89% and 86% developed clinical take or seroconverted, respectively. The time since last vaccination was significantly associated with the rates of clinical take and seroconversion (P</=0.001). CONCLUSIONS: These rates of successful vaccination in previously immunized individuals are consistent with the historical experience of use of this vaccine in Israel. The rate of occurrence and the severity of local and other reactions in the vaccinees were within the expected range. Levels of preexisting antibodies and the time since last vaccination played a major role in determining success rates.

PMID: 15346341 [PubMed - indexed for MEDLINE]

7: J Infect Dis. 2004 Oct 1;190(7):1286-94. Epub 2004 Aug 30.

Induction of human T cell-mediated immune responses after primary and secondary smallpox vaccination.

Kennedy JS, Frey SE, Yan L, Rothman AL, Cruz J, Newman FK, Orphin L, Belshe RB, Ennis FA.

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BACKGROUND: Postexposure vaccination strategies rely on a rapid induction of poxvirus-specific immune responses. Postvaccination cell-mediated immune (CMI) responses have not been compared by use of controlled trials in previously vaccinated (vaccinia-nonnaive) and nonvaccinated (vaccinia-naive) individuals. METHODS: To assess the time course of vaccinia-specific CMI responses, 20 previously vaccinated and 10 vaccinia-naive individuals were vaccinated with Dryvax, and serial blood samples were drawn. RESULTS: Both groups developed peak levels of vaccinia-specific interferon (IFN)- gamma -producing T cells by day 14 after vaccination. In vaccinia-nonnaive individuals, vaccinia-specific CMI responses were detected by day 7 after vaccination and preceded the increase in antibody titers. IFN- gamma enzyme-linked immunospot responses were significantly different between the 2 groups on days 7 (greater in vaccinia-nonnaive than in vaccinia-naive individuals) and 14 (greater in vaccinia-naive than in vaccinia-nonnaive individuals). Lymphoproliferation responses in vaccinia-nonnaive individuals were significantly higher on days 3 and 7, but cytotoxic T cell lysis activity was not statistically different at any time point. Antibody responses conformed to expected primary and secondary patterns of induction. CONCLUSIONS: This study demonstrates that the kinetics of CMI responses are different after primary vaccination versus after revaccination and indicates that memory can exist in individuals vaccinated >/=30 years ago. These data support the epidemiological observation in smallpox outbreaks that successful revaccination within 4 days of exposure is partially protective. In vaccinia-nonnaive individuals, protection against smallpox during the postexposure revaccination period may require T cell memory as an essential component for the rapid induction of protective cellular and humoral responses.

Publication Types:
Clinical Trial
Randomized Controlled Trial

PMID: 15346340 [PubMed - indexed for MEDLINE]

8: J Vet Med B Infect Dis Vet Public Health. 2004 Jun;51(5):199-201.

Taking advantage of the positive side-effects of smallpox vaccination.

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From the introduction of smallpox vaccination approximately 200 years ago right up to its discontinuation (1980), reports by physicians and scientists about positive side-effects such as healing of chronic skin rashes, reduced susceptibility to various infectious diseases, e.g. measles, scarlet fever and whooping cough, and even the prophylactic use of the vaccination, e.g. against syphilis, were published again and again. Comparison with the period after cessation of vaccination confirms the experiences of the above vaccinators. As early as 1956, targeted research on these observations led to evidence of the 'ring-zone phenomenon', i.e. the production of soluble antiviral substances in infected chicken embryos and cell cultures. With the help of modern immunological and bioengineering methods, it was later possible to demonstrate that these effects are based on the activation of lymphoreticular cells and the regulatory effect of certain cytokines within the context of the non-specific immune system. These findings led to the development of paramunization with paraspecific vaccines from highly attenuated animal pox viruses. During attenuation, deletions in the virus DNA occur. Attenuated animal pox strains are therefore suited for the production of vector vaccines. The fact that these vector vaccines demonstrate an especially high level of paraspecific efficacy and lack harmful effects is likewise the result of the attenuated animal pox

viruses. Optimum regulation of the entire immune system leads to increased paramunity already in the first few days after vaccination and to enhanced antigen recognition and thus accelerated commencement of specific immunity.

Publication Types:
Review
Review, Tutorial

PMID: 15330977 [PubMed - indexed for MEDLINE]

9: Anesthesiol Clin North America. 2004 Sep;22(3):541-61, viii.

Smallpox in the 21st century.

Lupatkin H, Lupatkin JF, Rosenberg AD.

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The viral disease, smallpox, was well known through the end of the 20th Century. Because it has been eradicated from natural populations, the present clinical experience with managing the disease is limited. Similarly, research in the pathophysiology, treatment, and prevention of the disease has recently become a priority. Concerns regarding smallpox as a weapon of bioterrorism have led to the implementation of a new prophylactic vaccine program, a renewal in variola vaccine research, and treatment regimens against variola infection.

Publication Types:
Review
Review, Tutorial

PMID: 15325718 [PubMed - indexed for MEDLINE]

10: Minn Med. 2004 Jul;87(7):12.

St. Cloud physician creates musical comedy about smallpox. Smallpox: the musical uses humor to explore exigencies in an outbreak.

Maas S.

Publication Types:
News

PMID: 15311633 [PubMed - indexed for MEDLINE]

11: Infect Control Hosp Epidemiol. 2004 Jul;25(7):613-5.

Smallpox vaccine: "non-take" responses in previously vaccinated adults.

Thomas G, Frenzel E, Hanna H.

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This small, retrospective study of laboratory workers who received smallpox vaccine showed a strong correlation between "non-take" reactions and the

presence of prior vaccination scars. Although we cannot exclude technique and vaccine potency as causes, the association we observed may indicate that these workers are displaying residual immunity to smallpox.

PMID: 15301038 [PubMed - indexed for MEDLINE]

12: Disaster Manag Response. 2004 Jul-Sep;2(3):81-6.

Triage of a febrile patient with a rash: a comparison of chickenpox, monkeypox, and smallpox.

Seguin D, Stoner Halpern J.

Emergency Center, William Beaumont Hospital, Royal Oak, MI, USA.

The immediate and correct recognition of an infectious exanthema can be aided with a focused history and minor assessment. False alarms can consume health care resources and create unnecessary anxiety. Clinicians can use specific references to not only help with educating staff, but to ensure a more accurate diagnosis and trigger notification of appropriate infectious disease protocols. The authors recommend that al emergency departments have a process in place to immediately isolate suspicious cases until a more thorough medial workup can be performed.

PMID: 15286598 [PubMed - indexed for MEDLINE]

13: J Emerg Med. 2004 Aug;27(2):127-31.

Generalized vaccinia in a deployed military member.

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This case report demonstrates the clinical progression of a case of lesions consistent with generalized vaccinia after primary vaccination in an otherwise healthy adult. The photographs document the appearance and natural course. The progression of the lesions is discussed, documenting the natural progression of the disease. This case report includes photographs of the oral lesions consistent with generalized vaccinia. Oral generalized vaccinia lesions are not well documented in the current medical literature.

Publication Types:
Case Reports

PMID: 15261353 [PubMed - indexed for MEDLINE]

14: Skinmed. 2004 Jul-Aug;3(4):197-206; quiz 207-8.

Smallpox: what the dermatologist should know.

Spuls PI, Bos JD, Rudikoff D.

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Despite the eradication of naturally occurring smallpox in 1977, stores of the virus have been maintained in laboratories in the United States and Russia. It is feared that certain rogue states and terrorist organizations may have illicitly acquired the virus with the intent of unleashing it as an agent of bioterrorism. The United States and other nations have begun vaccinating individuals in the military and health care workers who might become exposed. Primary care providers and dermatologists will be called upon to evaluate potential index cases and vaccination reactions. In this report, the authors review the essential clinical aspects of smallpox and potential reactions to smallpox vaccination. Special attention is given to eczema vaccinatum, which can occur in vaccinees and their family contacts with active or quiescent atopic dermatitis or a personal history of eczema.

Publication Types:
Review
Review, Tutorial

PMID: 15249780 [PubMed - indexed for MEDLINE]